ILWD Landfill, Bartholomew County
IND980503775

Draft Class 3 Hazardous Waste Post-Closure Permit
Revised Permit Pages

October 23, 2008

Revised Permit Conditions Pages

14	CMI Reports	Semi-annually; to coincide with groundwater reporting if possible.
15.	CMI Report Modification	30 days after receipt of IDEM's comments
16.	Operation and Maintenance Progress Reports	Semi-annually; to coincide with groundwater reporting if possible.

The IDEM may, at the facility's request, grant extensions to the time frames listed in this section. IDEM approved time extensions will not require a permit modification.

G. FORCE MAJEURE

Force Majeure," for purposes of this Permit, is defined as any event arising from causes beyond the control of the Permittee that delays or prevents the performance of any obligation under this Permit despite Permittee's best efforts to fulfill the obligation. The requirement that the Permittee exercise "best efforts to fulfill the obligation" includes using best efforts to anticipate any potential force majeure event as it is occurring and best efforts to address the effects of any potential force majeure event as it is occurring and following the potential force majeure event, such that the delay is minimized to the greatest extent possible. "Force Majeure" does not include financial inability to complete the work required by this Permit nor any increases of costs to perform the work.

The Permittee shall notify IDEM by calling within three (3) calendar days and by writing no later than seven (7) calendar days after any event which the Permittee contends is a force majeure. Such notification shall describe the anticipated length of the delay, the cause or causes of the delay, the measures taken or to be taken by the Permittee to minimize the delay, and the timetable by which these measures will be implemented. The Permittee shall include with any notice all available documentation supporting its claim that the delay was attributable to a force majeure. Failure to comply with the above requirements shall preclude the Permittee from asserting any claim of force majeure for that event. The Permittee shall have the burden of demonstrating that the event is a force majeure. The decision of whether an event is a force majeure shall be made by IDEM. Said decision shall be communicated to the Permittee.

If a delay is attributable to a force majeure, IDEM shall extend, verbally or in writing, the time period for performance under this Permit by the amount of time that is attributable to the event constituting the force majeure. Any final determination by IDEM under this section shall be reviewable under IC 4-21.5. However, if the Permittee appeals an IDEM decision concerning force majeure, such appeal shall not toll the accrual of penalties during the review of that appeal.

V. GROUNDWATER MONITORING CONDITIONS

A. COMPLIANCE GROUND WATER MONITORING PROGRAM

Hazardous constituents are currently being detected in monitoring wells at the compliance point downgradient of the ILWD hazardous waste landfill (regulated unit). Consequently, the Permittee will implement a compliance ground water monitoring program in accordance with the requirements of 40 CFR 264.99 and as specifically described here.

The ground water will be monitored to determine whether the regulated unit is in compliance with the ground water protection standard (GWPS). The GWPS consists of the following:

1. Hazardous Constituents

Hazardous constituents that have been statistically detected in the ground water at the point of compliance and that are reasonably expected to be in or derived from waste contained in the regulated unit are specified in Section D.-4a(1) of Attachment D.

2. Concentration Limits

Alternate concentration limits for hazardous constituents detected in the ground water are identified in the following table.

Parameter	Well	Units	Concentration Limits
Arsenic (dissolved)	All wells	Mg/L	0.05 (MCL)
Barium (dissolved)	All wells	Mg/L	2.0 (MCL)
Nickel (dissolved)	All wells	Mg/L	0.73 (ACL)
Selenium (dissolved)	All wells	Mg/L	0.05 (MCL)
Zinc (dissolved)	All wells	Mg/L	11.0 (ACL)
Phenol	MW-6, MW-8, MW-9, and MW-10A	Mg/L	22.0 (ACL)
1,1-Dichloroethane	MW-1R	Ug/L	3,000 (ACL)
1,1-Dichloroethane	MW-2	Ug/L	2,500 (ACL)
1,1-Dichloroethane	MW-3R	Ug/L	7,000 (ACL)
1,1-Dichloroethane	MW-5R	Ug/L	1,500 (ACL)
1,1-Dichloroethane	All other wells	Ug/L	990 (ACL)
1,2-Dichloroethane	MW-1R	Ug/L	17 (ACL)
1,2-Dichloroethane	MW-2	Ug/L	25 (ACL)
1,2-Dichloroethane	MW-3R	Ug/L	40 (ACL)

1,2-Dichloroethane	MW-5R	Ug/L	9 (ACL)
1,2-Dichloroethane	All other wells	Ug/L	5 (ACL)
Toluene	All Wells	Ug/L	1,000 (MCL)
Vinyl Chloride	MW-10A	Ug/L	10 (ACL)
Vinyl Chloride	All other wells	Ug/L	2 (ACL)
1,2,3,4,6,7,8,9-OCDD	MW-1R and MW-5R	Ng/L	300[1](ACL)
Cis-1,2-Dichloroethylene	All wells	Ug/L	70 (ACL)
Bis 2-ethylhexyl phthalate	MW-6, MW-8, MW-9, and MW-10A	Ug/L	10 (ACL)

[1]This limit applies to OCDD only, if other dioxon congeners are detected, the limit must be revised in accordance with the contingency statement included in the October 25, 2006 IDEM letter to Heritage Environmental Services.

For the compliance monitoring program the concentration of a hazardous constituent must not exceed the alternate concentration limit.

3. Point of Compliance

The point of compliance is the vertical surface located at the hydraulic down gradient limit of the waste management boundary extending into the uppermost aquifer underlying the regulated unit. The uppermost aquifer, which is contained in unconsolidated till or bedrock depending on well location, is described in Section D.-2 of Attachment D and Section 5 of Exhibit D-4 of Attachment D. Generally, the landfill sits on approximately 30 feet of unconsolidated till. Near the northern boundary of the landfill, the unconsolidated materials are fluvial sediments deposited by Little Sand Creek. Bedrock beneath the unconsolidated sediments are of Devonian and Silurian age and consist mainly of dolomite and limestone. Compliance wells for the unconsolidated aquifer are MW-3R (upgradient), MW-1R, MW-2, MW-5R and MW-6. Compliance wells for the bedrock aquifer are MW-7 (upgradient), MW-8, MW-9, and MW-10A. The compliance point for the landfill is shown on Sheet 2 of Attachment D.

Ground water flow in the upper unconsolidated aquifer is generally to the north and discharges into Little Sand Creek which is located just north-northwest of the landfill. On the south side of the landfill the unconsolidated till is dry. The upper aquifer on this side of the landfill is within the bedrock. Ground water flow in the bedrock aquifer is generally to the south-southwest and discharges into an active quarry located immediately south of the landfill.

4. Compliance Period

In accordance with 40 CFR 264.96, the compliance period is the number of years

equal to the active life of the waste management area (including any waste management activity prior to permitting, and the closure period). The duration of the compliance monitoring period for the regulated unit is calculated to be ten (10) years (landfill operations began in 1973 and closure certification was obtained in December 1983).

ILWD submitted an application for a Compliance Monitoring Program in January 2001. Sampling for 40 CFR 264 Appendix IX constituents was performed in 2002, 2003, 2005, and 2006. Those four (4) years shall be considered part of the compliance monitoring period as sampling performed during those years was as rigorous as that in the proposed Compliance Monitoring Program. The duration of the compliance period will be six (6) years beginning with issuance of the final Compliance Monitoring Permit.

If, at the end of the compliance monitoring period, there have been no confirmed exceedences of the ground water protection standards identified under Permit Condition V.A.2., the Permittee may resume detection monitoring.

B. COMPLIANCE MONITORING SYSTEM

1. Compliance Monitoring System

The compliance ground water monitoring system used to determine whether the regulated unit is in compliance with the GWPS is specified in Section D.-2 of Attachment D. The compliance ground water monitoring system includes wells: MW-1R, MW-2, MW-3R, MW-5R, MW-6, MW-7, MW-8, MW-9, and MW-10A. Compliance monitoring well locations are shown on Sheet 2 of Attachment D. Well logs and construction diagrams are located in Exhibit D-1 of Attachment D.

2. Operation and Maintenance

The Permittee will operate and maintain the ground water monitoring system to meet the requirements of 40 CFR 264.97(a)(2), (b) and (c) and 264.15. The monitoring system, including ground water piezometers, will be routinely inspected, maintained and documented in accordance with the inspection schedules of Appendix A of Exhibit D-3 of Attachment D.

3. Installation of Monitoring Wells and Piezometers

In the event that new, or replacement, monitoring wells or piezometers are necessary, the Permittee will follow the requirements specified in 40 CFR 270.42, Appendix I.

4. Abandonment of Monitoring Wells and Piezometers

A monitoring well or piezometer that will no longer be used as a part of the compliance monitoring program will be permanently abandoned using methods described in Section 4.2 of Appendix A of Exhibit D-3 of Attachment D. Monitoring well or piezometer abandonment procedures must meet the requirements specified in 312 IAC 13.

C. SAMPLING PROCEDURE AND STATISTICAL METHOD

The Permittee will use the sampling procedures described in Exhibit D-3 (Ground Water Sampling and Analysis Plan) of Attachment D to collect, preserve, control and analyze all ground water samples.

Ground water analytical data for hazardous constituents will be evaluated to determine whether there is statistically significant evidence of increased contamination using the statistical methods in Appendix B of Exhibit D-4 of Attachment D.

D. STATISTICAL EVALUATIONS

The Permittee will determine whether there is statistically significant evidence of increased contamination for each hazardous constituent in each compliance monitoring well by statistically comparing ground water analytical results with the concentration limits contained in Permit Condition V.A.2. The Permittee shall have one hundred and twenty (120) days from the original sampling event to complete all resamples and enter the results of each ground water sampling event into the facility record.

The statistical procedure entails comparison of the analytical results from the original sample and any resamples to the concentration limits identified in Permit Condition V.A.2. The number of resamples allowed for each constituent is identified in the Resampling Table included in Appendix B of Exhibit D-4 of Attachment D.

If the Permittee finds an original sample result or any of the resample values are less than or equal to the concentration limits presented in Permit Condition V.A.2., then the Permittee shall continue compliance monitoring. The Permittee shall comply with either Permit Condition V.H. or V.I. if any original sample result and all of its resample values exceed a concentration limit identified under Permit Condition V.A.2.

E. DETERMINATION OF GROUND WATER FLOW RATE AND DIRECTION

The Permittee will determine, during each ground water sampling event, the static ground water elevation in each compliance monitoring well and piezometer identified in Table D-2 of Exhibit D-1 of Attachment D. Static ground water elevations will be used to determine the rate and direction of ground water flow within the

unconsolidated and bedrock aquifer at the time of each sampling event. The ground water flow rate and direction will be illustrated through the preparation of an accurate ground water flow map using static water levels obtained during each sampling event and the flow equation presented in Section D.-4d(6) of Attachment D.

F. FREQUENCY FOR COLLECTING SAMPLES AND CONDUCTING EVALUATIONS

The permittee will:

1. Semi-Annually

a. Sample and analyze the ground water for each chemical parameter listed in Permit Condition V.A.2.

b. Determine whether there is statistically significant evidence of increased contamination for hazardous constituents listed in Permit Condition V.A.2. in each compliance monitoring well. Each determination will be completed within fifteen (15) days of the receipt of laboratory analytical results.

c. Prepare an accurate ground water flow map for the unconsolidated and bedrock aquifers using static water levels obtained during each sampling event and the flow equation presented in Section D.-4d(6) of Attachment D.

G. SAMPLING AND ANALYSIS FOR APPENDIX IX CONSTITUENTS

The Permittee shall analyze samples from monitoring wells at the compliance point for all constituents identified in the following table to determine whether additional Appendix IX hazardous constituents are present in the uppermost aquifer and, if so, at what concentrations, pursuant to procedures described in 40 CFR 264.99(g). If the Permittee detects Appendix IX constituents in the groundwater that are not already identified in Permit Condition V.A.2, then the Permittee may resample within one month and repeat the analysis. If the second analysis confirms the presence of the new constituents , the Permittee must report the concentrations of these additional constituents to the IDEM within seven (7) days after the completion of the second analysis and add them to the monitoring list through the submittal of a Class 3 Permit Modification (40 CFR 270.42, Appendix I, Section C.5). If the Permittee chooses not to resample, then the concentrations of these additional constituents must be reported with seven (7) days and a Class 3 Modification submitted to add them to the monitoring list. The Permittee shall submit any Class 3 Permit Modifications required under this permit condition within thirty (30) days of the seven (7) day notification.

Parameter	Well	Frequency
40 CFR 264 Appendix IX Volatile Organic Constituents	All Wells	Annually
40 CFR 264 Appendix IX Semi-Volatile (Base Neutral and Acid Extractable) Organic Constituents[(1)]	MW-6, MW-8, MW-9, and MW-10A	Annually
40 CFR 264 Appendix IX Metals (dissolved) Except Mercury[(1)]	All Wells	Annually
Dioxins and Furans[(1),(2)]	MW-1R, MW-5R, MW-6, and MW-7	Annually
Dioxins and Furans[(1),(2)]	MW-10A	Each Odd Numbered Year

(1) List of analytical methods and specific constituents to be analyzed for each broad parameter class is provided in Attachment D, Exhibit D-3, Table 4
(2) Analytical method for Spring event is SW-846 Method 8290 for scheduled wells.

H. EXCEEDANCE OF CONCENTRATION LIMITS

If the Permittee determines, pursuant to permit condition V.D., that any concentration limit at permit condition V.A.2 is being exceeded at any point of compliance or property-line monitoring well the Permittee will:

1. Provide Notification

   Notify the Commissioner of this finding in writing within fourteen (14) days. The notification will indicate what concentration limit(s) has (have) been exceeded.

2. Submit an Application for a Permit Modification

   Submit to the commissioner an application for a permit modification to establish a corrective action program meeting the requirements of 40 CFR 264.100 within 180 days. The application must at a minimum include the information required at 40 CFR 264.99(h)(2).

I. ALTERNATE SOURCE DEMONSTRATION

If the Permittee determines, pursuant to permit condition V.D., that the concentration limits at permit condition V.A.2 are being exceeded at any monitoring well at the point of compliance or the property boundary, the Permittee may demonstrate that a source other than the regulated unit caused the contamination, or that the detection is an artifact

caused by an error in sampling, analysis, statistical evaluation, or natural variation in ground water quality. In making this demonstration, the Permittee must meet the requirements of 40 CFR 264.99(i). The Permittee shall notify the Commissioner in writing within fourteen (14) days of confirming an exceedence of a concentration limit specified at Permit Conditon V.A.2. of their intent to make an alternate source demonstration. The notification must identify which concentration limit has been exceeded. The alternate source demonstration must be submitted within sixty (60) days of the notification of intent.

J. PERMIT MODIFICATIONS

If the Permittee determines that the compliance monitoring program no longer satisfies the requirements for compliance monitoring required at 40 CFR 264.99, the Permittee must, within 90 days, submit an application for a permit modification to make any appropriate changes to the program.

K. RECORD KEEPING AND REPORTING

Within one hundred and twenty (120) days of the completion of each semi-annual ground water sampling event, the Permittee will enter the results of each ground water sampling event into the facility record. The record will include results from the original sampling and any required resamples. Additionally, a complete ground water report (two hard copies and one digital copy) containing the information and evaluations required at 40 CFR 264.15 and 264.99, will be submitted to the Geology Section Chief, Office of Land Quality. Each ground water report will document the information described in Section 6.3 of Exhibit D-4 of Attachment D.

Revised SAP Pages

GROUNDWATER SAMPLING AND ANALYSIS PLAN

Heritage Environmental Services, LLC
ILWD Landfill
3415 S 650 E Road
Columbus, Indiana 47203

IND 980 503 775

Latest Revision August 2008

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1. INTRODUCTION

The purpose of this document is to describe in full detail the sampling, maintenance and analytical methods, and procedures necessary to assure consistent ground water quality data from a representative set of monitoring wells at the ILWD Landfill, located near Columbus, Indiana. The basis for this sampling and analysis plan is the RCRA Ground Water Monitoring Technical Enforcement Guidance Document (TEGD) published by the USEPA Office of Solid Waste and Emergency Response (OSWER) dated September 1986. This plan was approved with the issuance of the Part B Post Closure Permit in 1994. Revisions to this Ground Water Sampling and Analysis Plan were made in March 1999, March 2000, May 2000, June 2005, May 2007, and August 2008.

2. PERSONNEL

Sampling activities are currently under the direct supervision of Regional Services Corp. Other experienced contractors and personnel may be utilized as necessary for field activities without modification of the permit. Sample analysis is currently performed by Heritage Environmental Services, LLC Commercial Laboratory Operation in Indianapolis, Indiana.

3. SAMPLING FREQUENCY

Semi-annual samples are to be collected in the spring and fall, typically in April or May and October or November.

4. SAMPLING QUANTITY

One sample is retrieved from each well during each semi-annual sampling event. Each sample is analyzed for parameters listed on Table 3 (Section V.A.2) of the permit semiannually. The facility also conducts testing for selected constituents listed on 40 CFR Part 264 Appendix IX one time per year as listed on Table 3 (Section V.G.) during the Spring sampling event.

5. SAMPLING PROCEDURES

5.1. General

Sampling is to be avoided on windy days when dry soil conditions exist to reduce the possibility of introducing dust into sample containers. All bottles and sample containers will be new, thus no pre-cleaning is required. All reagents used as preservatives will be purchased from reputable suppliers and will be added to containers in the laboratory or the bottles will be purchased with preservatives added by the suppliers. Any 0.45-micron filters used in field filtering are to be new and will not be allowed to come into contact with potentially contaminated surfaces before or during use.

5.2. Pre-Sampling Preparation

- Determine the number of wells to be sampled based on whether routine semi-annual or any special samples are being collected.
- Order bottles from Heritage Labs for the appropriate number of wells. Include with order one spare set of bottles per ten samples plus bottles for any blanks and duplicates to be taken. Order 1-2 days before pickup.
- Assemble all necessary supplies, including filters, electronic W.L. meters (main plus spare), spare batteries, sample and chain-of-custody forms, thermometer, D.I. water, detergent, latex gloves, calibrated purge bucket and other items on purging and sampling list.
- Obtain or check to assure that the sampling crew has a copy of, and carries the most recent Ground Water Sampling and Analysis Plan on-site.

5.3. Purging Equipment

- Dedicated PVC or disposable polypropylene bailers. Wash dedicated equipment with non-phosphate detergent, and triple rinse with D.I. water between sampling events. 3" diameter by 3' length and 1.2 gallon capacity may be used for 4" diameter wells. 1.30" diameter by 5' or 10' length with 0.35 or 0.7-gallon capacity respectively may be used for 2" diameter wells. Dedicated pumps may also be used for purging but not sampling unless a modification to the plan is approved.
- 3/8" or 1/4" disposable polypropylene rope with plated hooks or tied directly to bailer.
- Electronic water level meter graduated to 0.02 feet (Well Wizard 6000 or equal).
- Graduated bucket for measuring water volume purged.
- Trash can with disposable trash bags for liners.
- Latex or nitrile lab gloves for all sampling and purging personnel.

- Sampling Request/Chain-of-Custody form (Figure 1), Field Data form (Figure 2), for recording purging, sampling and other information.

- OVA meter, interface probe and double check valve bailers only if prior analysis has detected volatile organics in the facility leachate at greater than 100 mg/l.

5.4. Purging Procedures

- Inspect well, guard casing and lock for tampering and damage. Record notes regarding defects in field logbook or on sampling forms. Do not smoke or eat around open well. Store well caps in bucket or pro-cover lid. Notify inspector if any repairs are needed.

- Determine water level to nearest 0.01 feet by taking 3 successive readings with electronic meter referenced to survey mark on well casing. Decontaminate the probe between wells with non-phosphate detergent wash, followed by triple rinse with D.I. water. Record reading on field data form. Calculate volume of water to be removed (3 minimum) by multiplying the difference between the water level and the bottom of the well by 0.5 gallons/foot for 2" wells and 2 gallons/ft for 4" wells. Annually check total depth of well in accordance with the O & M Plan (or when repair of the casing is required). The procedure for measuring total depth is as follows:

    1. After recording depth to static water level, lower the water level probe to the bottom of the well.
    2. Raise the cable until tension is felt, indicating that the probe is sounding the bottom of the well.
    3. Slowly raise and lower the probe until the location of the bottom of the well is accurately determined.
    4. Record the depth to the bottom of the well on the field data form and to the nearest 0.1 foot, correcting for any difference between the probe and sensor length.
    5. Reel the cable onto the meter spool and rinse thoroughly with de-ionized water.

- If it is determined that the volatile organics concentration of an annual leachate sample exceeds 100 mg/l, each well shall be checked for immiscible layers using the following procedure:

    1. Using a suitable interface probe, determine if an immiscible layer exists at either the water surface or at the bottom of the well. Record determination on the sampling form and in the logbook. If immiscible layers are present, determine thickness of the layers.

    2. If no layers are present, triple-rinse probe and cable with detergent solution and triple-rinse with de-ionized water.

    3. If layers are detected, sample layers with dedicated double-check

valve bailer (or equivalent sampling device) for volatile organics. The immiscible layer samples shall be in addition to the regular ground-water samples and shall be uniquely identified on the Sample Request form.

4. Sampling and measuring equipment will be cleaned with detergent solution and triple-rinses with de-ionized water.

- Wear gloves while handling bailer and rope. Use new gloves for each well.
- Wash any dedicated bailer or pump with non-phosphate detergent and triple rinse with de-ionized water prior to purging each well.
- Purge well until dry or until a minimum of 3 well volumes have been removed. Feed rope into lined trash can, taking care while purging to prevent contact with the ground. Purge from the uppermost level to remove stagnant water. Lower bailer or pump into water slowly to minimize aeration.
- Place purged water into calibrated bucket to measure volume removed from well or count bailer volumes. If hazardous constituents above MCL's have previously been detected in the well, dispose of purge water into the on-site leachate tank, otherwise pour purge water onto ground away from the well casing. Record total volume removed on sampling form. Also record if well was purged dry.
- Replace cap and lock, discard trash can liner, place bailer rope in bag or discard, and bailer or pump in plastic sleeve or bag. If bailer and rope are disposable they can be temporarily left inside well until sampling is completed.
- Purging order shall be determined prior to beginning fieldwork and will be based upon results of recovery tests described in the Operations and Maintenance Plan. Samples should be retrieved from wells within 4 hours of purging or as soon as sufficient water has returned to enable sampling. Time of purging and sampling should be recorded on the field data form.

5.5. Sampling Equipment

- Dedicated Teflon or disposable polypropylene bailers, 1.5" or 3" diameter x 3' to 5' length with dedicated rope or new polypropylene rope. Dedicated bailers shall be cleaned after removal from plastic sleeve with non-phosphate detergent and a minimum triple rinsing with D.I. water.
- Dedicated or new polypropylene ropes.
- Trash can with plastic liner
- Latex or nitrile gloves for all sampling personnel handling sampling equipment or containers. Gloves shall be changed at each well.

- Filtering apparatus including pump, sample receptacle and 0.45 micron filters (used for dissolved metals only) or peristaltic pump with in-line capsule filters. The apparatus should be washed with non-phosphate detergent and triple rinsed between wells.

- Thermometer

- Pre-preserved and labeled sample bottles for each well, duplicate, and blanks.

- De-ionized water.

- Coolers with ice.

- Non-phosphate detergent (Liquinox or equal).

- Sample Request/Chain-of-Custody form, Field Data form.

5.6. Sampling Procedures

- Begin sampling at first monitoring well that has recovered sufficiently. For wells that return quickly, take sample at completion of purging or within 4 hours of completion of purging. If recharge is slow, take sample as soon as recharge allows, preferably within 4 hours of completion of purging. Take no volatile organic samples after 8 hours. If contamination has been noted at a well during past samplings, sample this well last.

- Clean any dedicated bailer with detergent and triple rinse with D.I. water. Lower bailer slowly into well water to minimize aeration. Withdraw one bailer volume from well and discard. Note any separate phases of sample on sampling form.

- Fill container(s) in order of volatilization sensitivity, preferably in the following order. If there is insufficient water present the following parameters will be given first priority:

  - VOA,
  - Phenols, semi-volatile organics
  - Chloride, nitrate
  - CN, sulfide, fluoride
  - Dissolved metals

- See Table 1 for sample container types, volumes and preservatives. Minimize air space in sample containers. Eliminate head space in volatile organic containers by filling cap and bottle, installing cap then checking by gently tapping bottle with finger and turning bottle upside down to check for any remaining bubbles.

- Sample containers shall be filled directly from the bailer by slowly pouring the water into each sample container with a minimal amount of contact with air.

- Obtain any special field analysis sample (if required) and temporarily store in 150 ml plastic bottle. Analyze immediately after completion of each well sampling. Record data on field data form.

- Filter small amount of sample into filter receptacle, rinse receptacle and discard filtrate.

- Filter sample for metals analysis and place into pre-preserved container. Disassemble filter apparatus, (if cartridge filters not used) wash with non-phosphate detergent, and triple rinse with D.I. water and change filter paper.

- After adding sample, bottles should be sealed tightly.

- Affix any additional labels to containers and transfer to coolers with ice. Note: Labels should be placed on bottle before sampling to minimize field handling. Sample labels will be completed with the following:

    - Sample date
    - Sample ID
    - Facility name
    - Preservative type

- Record time, date, weather conditions and miscellaneous comments and observations on field data form. Record sample number and corresponding well number on field data form.

- Review sample records to ensure that they have been fully and properly completed (i.e. Appropriate analyses, field data, signatures, etc.)

- Rinse dedicated bailer with D.I. water and place in sleeve and tube. Discard disposable bailers.

5.7. QA/QC Samples

Table 2 identifies the QA/QC samples collected at ILWD, the frequency of collection, and the criteria for conducting analysis.

Equipment Blanks will be used to determine the degree to which contaminants are being introduced to samples for metals by the sampling and filtering equipment. Equipment blanks will be collected by passing D.I. water through a disposable or decontaminated Teflon bailer and passing the sample D.I. water through clean filtration equipment.

Trip Blanks will consist of containers filled with D.I. water that are sent by the contract laboratory. The containers will remain unopened in the field and will be sent back with the sample shipment and analyzed by the contract laboratory to determine the degree to which cross contamination has occurred during sample shipment.

Matrix Duplicates will be collected by obtaining a second set of samples from a random sampling

point using the same equipment, and preparing and preserving the sample the same as for the original sample.

5.8. Sample Shipping

At the end of each days sampling, all containers are to be delivered that evening or the next morning to Heritage Environmental Services, LLC Commercial Laboratory, in Indianapolis (60 miles). Samples are to be logged in by the laboratory receiving personnel and verified by the lab representatives signature on the sample request/chain-of-custody form. The internal temperature of all shipping containers will be documented by checking the temperature of a blank container with D.I. water. The temperature of the blanks shall be recorded on the chain-of-custody form when received at the laboratory.

5.9. Sample Numbering

Sample numbering will be a unique number that identifies the date of sample collection and designates the monitor well sampled. Typically a sample will be identified by a 6-digit number consisting of the month, day, year followed by the well identification number. For instance, a sample collected on August 9, 2008 from well MW-5R would be designated 080908-MW-5R. Duplicate samples will be assigned a number using this convention and be identified as duplicates. Blanks need to be identified to the laboratory as trip, equipment or field. Samples will be cross-referenced with the sample point identification on the field data form.

5.10. Additional Equipment Cleanliness

All sample containers shall remain closed except when samples are being placed in them.

Clean or decontaminated sampling equipment surfaces shall not be allowed to come in contact with the ground. Sampling personnel without gloves will not touch equipment surfaces.

Monitoring well caps shall remain in place at all times except when bailing, purging, developing or sampling wells. When caps are removed, they should be stored in the lined trashcan or the protective casing lid.

5.11. Chain-of-Custody (COC)

Sample custody procedures will be followed to ensure that all samples are always in the custody of a responsible person, and to provide a record of those responsible for the samples. This will be accomplished by maintaining a chain-of-custody record on each sample form.

5.12. Laboratory and QA/QC Reporting

The current quality assurance protocol of Heritage Laboratories shall be used when analyzing and handling samples. The current laboratory quality assurance plan is dated June 2004. Updates to that version are incorporated herein by reference. Analytical methods as of June 2005 are listed in Table 3 and Table 4.

Analytical results submitted to the IDEM, as part for ground water sampling and analysis at the facility will include at a minimum:

- Certificates of analysis, including analytical results, sampling dates, analysis dates, analytical methods used, and estimated quantitation limits
- Quality assurance reports, including method blank results, matrix duplicate results (as applicable), matrix spike/matrix spike duplicate (MS/MSD) results, laboratory control samples, surrogate recoveries, method blanks, and laboratory control samples
- Signed chain of custody records
- Tuning results (GC/MS)
- Initial and continuing calibration results
- Method of standard addition (ICP) or serial dilution analysis (ICP) as applicable
- Internal standard areas

The laboratory will maintain raw data for three years consisting of chromatograms, recorder outputs, mass spectrum reports, computer print-outs, charts, graphs, bench sheets, or any other hard copy data generated during sampling and analysis that will be made available to the IDEM upon request.

GROUND WATER SAMPLING AND ANALYSIS PLAN TABLES

TABLE 1

SAMPLE VOLUME, BOTTLES, PRESERVATION, AND HOLDING TIMES FOR GROUND WATER PARAMETERS

Analysis/Container	Preservative	Holding Time	Event [1]
Dissolved Metals - 250ml minimum, Filtered (0.45 u) poly bottle or cubitainer	$HNO_3$to pH < 2 and Cool to 4 °C	6 months, mercury 28 days	Spring and Fall
Semivolatile Organic Compounds 1 Liter (minimum) Glass, Amber	None and Cool to 4 °C	7 days to extraction, 40 days to analysis	Spring and Fall
Volatile Organic Compounds Two (2) glass vials, 40 ml (minimum)	HCl to pH <2 and Cool to 4 °C	14 days	Spring and Fall
Polychlorinated Dibenzo-P-Dioxins and Dibenzofurans- 1 Liter (minimum) Amber Glass	None and Cool to 4 °C	7 days to extraction, 40 days to analysis	Spring and Fall
Cyanide Plastic or Glass, 500 mL	NaOH to pH>12	14 days	Spring
Sulfide 1 Liter, Plastic or Glass	$NaOH/ZnC_4H_6O$ to pH >9 and Cool to 4 °C	7 days	Spring
Organochlorine Pesticides 1 Liter (minimum) Amber Glass	None and Cool to 4 °C	7 days to extraction, 40 days to analysis	Spring
Polychlorinated Biphenyls 1 Liter (minimum) Amber Glass	None and Cool to 4 °C	7 days to extraction, 40 days to analysis	Spring
Chlorinated Herbicides 1 Liter Glass	None and Cool to 4 °C	7 days to extraction, 40 days to analysis	Spring
Alcohols Two (2) glass vials, 40 ml (minimum)	None and Cool to 4 °C	14 days	Spring

(1) Indicates which ground water sampling event the particular type of analysis and bottles are utilized at the facility. Tables 3 and 4 list the constituents analyzed during the Spring and Fall events.

TABLE 2

QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

Sample Type	Parameters	Frequency
Equipment Blank	Metals	1 per 10 samples
Trip Blank	Volatiles and Semi-Volatiles	1 per sampling day
Matrix Duplicates	All Parameters Sampled	1 per 10 samples
Temperature Blank	None	1 per cooler

TABLE 3

ANALYTICAL METHODS FOR SPRING AND FALL COMPLIANCE MONITORING PARAMETERS[1]

PARAMETER	WELLS	METHOD	DETECTION LIMIT
Arsenic (dissolved)	All Wells	SW846 - 6010B	0.005 Mg/L
Barium (dissolved)	All Wells	SW846 - 6010B	0.010 Mg/L
Nickel (dissolved)	All Wells	SW846 - 6010B	0.005 Mg/L
Selenium (dissolved)	All Wells	SW846 - 6010B	0.005 Mg/L
Zinc (dissolved)	All Wells	SW846 - 6010B	0.020 Mg/L
1,1 Dichloroethane	All Wells	SW846 - 8260B	0.005 Mg/L
1,2 Dichloroethane	All Wells	SW846 - 8260B	0.005 Mg/L
cis-1,2 Dichloroethylene	All Wells	SW846 - 8260B	0.005 Mg/L
Toluene	All Wells	SW846 – 8260B	0.005 Mg/L
Vinyl Chloride	All Wells	SW846 - 8260B	0.002 Mg/L
Phenol	MW-6, MW-8, MW-9, and MW-10A	SW846 - 8270C	0.010 Mg/L
Bis 2-ethylhexylphthalate	MW-6, MW-8, MW-9, and MW-10A	SW846 - 8270C	0.010 Mg/L
1,2,3,4,6,7,8,9-OCDD	MW-1R and MW-5R	SW846 – 8280A	100 Ng/L

(1) Constituents are analyzed during the Fall and Spring events and compared with concentration limits specified in Section V.A.2 of operating permit. Selected 40 CFR Part 264, Appendix IX constituents are analyzed during Spring event in addition to the above constituents.

ENHANCED 40 CFR PART 264 APPENDIX IX MONITORING PARAMETERS SPRING EVENT

Parameter	Well	Frequency
40 CFR Part 264 Appendix IX Volatile Organic Constituents [2]	All Wells	Annually
40 CFR Part 264 Appendix IX Semi-Volatile (Base Neutral and Acid Extractable) Organic Constituents [2]	MW-6, MW-8, MW-9, MW-10A, MW1R, MW-3R, MW-5R, MW-7	Annually
40 CFR Part 264 Appendix IX Metals (Dissolved) Except Mercury [2]	All wells	Annually
Dioxins and Furans [2], [3]	MW-1R, MW-5R, MW-6, and MW-7	Annually
Dioxins and Furans [2], [3]	MW-10A	Each Odd Year

(2) List of analytical methods and specific constituents to be analyzed for each broad parameter class is provided in Attachment D, Exhibit D-3, Table 4

(3) Analytical method for Spring event is SW-846 Method 8290 for scheduled wells.

Notes: Methods may change due to revisions in SW-846 or Heritage Laboratories methods as reflected in updates of the QA Plan. Detection limits may vary due to matrix interference and/or changes in methods.

TABLE 4
40 CFR PART 264 APPENDIX IX PARAMETER LIST AND DEFAULT DETECTION LIMITS

PARAMETER	ANALYSIS METHOD	UNITS	ESTIMATED QUANTITATION LIMIT
Metals and Inorganics			
Cyanide, Total	SW846-9012A	MG/L	0.005
Sulfide	SW846-9034	MG/L	1.0
Antimony	SW846-6010B	MG/L	0.010
Arsenic	SW846-6010B	MG/L	0.0050
Barium	SW846-6010B	MG/L	0.010
Beryllium,	SW846-6010B	MG/L	0.0040
Cadmium	SW846-6010B	MG/L	0.0010
Chromium	SW846-6010B	MG/L	0.010
Cobalt	SW846-6010B	MG/L	0.010
Copper	SW846-6010B	MG/L	0.010
Lead	SW846-6010B	MG/L	0.0050
Mercury	SW846-7470A	MG/L	0.00020
Nickel	SW846-6010B	MG/L	0.0050
Selenium	SW846-6010B	MG/L	0.0050
Silver	SW846-6010B	MG/L	0.010
Thallium	SW846-6010B	MG/L	0.010
Tin	SW846-6010B	MG/L	0.010
Vanadium	SW846-6010B	MG/L	0.010
Zinc	SW846-6010B	MG/L	0.020
Herbicides, Pesticides, and PCB's			
2,4,5-Trichlorophenoxyacetic Acid	SW846-8151A	UG/L	1.0
2,4-D	SW846-8151A	UG/L	1.0
Silvex (2,4,5-TP)	SW846-8151A	UG/L	1.0
4,4'-DDD	SW846-8081	UG/L	0.1
4,4'-DDE	SW846-8081	UG/L	0.1
4,4'-DDT	SW846-8081	UG/L	0.1
Aldrin	SW846-8081	UG/L	0.05
alpha-BHC	SW846-8081	UG/L	0.05
alpha-Chlordane	SW846-8081	UG/L	0.5
beta-BHC	SW846-8081	UG/L	0.05
Delta-BHC	SW846-8081	UG/L	0.05
Dieldrin	SW846-8081	UG/L	0.1
Endosulfan I	SW846-8081	UG/L	0.05
Endosulfan II	SW846-8081	UG/L	0.1
Endosulfan Sulfate	SW846-8081	UG/L	0.1
Endrin	SW846-8081	UG/L	0.1
Endrin Aldehyde	SW846-8081	UG/L	0.1
Gamma-BHC	SW846-8081	UG/L	0.05
Gamma-Chlordane	SW846-8081	UG/L	0.5
Heptachlor	SW846-8081	UG/L	0.05

Notes: Methods may change due to revisions to SW-846 or Heritage Laboratories methods as reflected in update of QAP. Detection limits may vary due to matrix interference or method changes

TABLE 4
40 CFR PART 264 APPENDIX IX PARAMETER LIST AND DEFAULT DETECTION LIMITS

PARAMETER	ANALYSIS METHOD	UNITS	ESTIMATED QUANTITATION LIMIT
Heptachlor Epoxide	SW846-8081	UG/L	0.05
Methoxychlor	SW846-8081	UG/L	0.5
Toxaphene	SW846-8081	UG/L	1
PCB Aroclor 1016	SW846-8082	UG/L	0.5
PCB Aroclor 1221	SW846-8082	UG/L	0.5
PCB Aroclor 1232	SW846-8082	UG/L	0.5
PCB Aroclor 1242	SW846-8082	UG/L	0.5
PCB Aroclor 1248	SW846-8082	UG/L	0.5
PCB Aroclor 1254	SW846-8082	UG/L	1
PCB Aroclor 1260	SW846-8082	UG/L	1
Alcohols			
Isobutanol	SW846-8015B	MG/L	5.0
Base Neutral and Acid Extractables			
1,2,4,5-Tetrachlorobenzene	SW846-8270C	UG/L	10
1,2,4-Trichlorobenzene	SW846-8270C	UG/L	10
1,2-Dichlorobenzene	SW846-8270C	UG/L	10
1,3-Dichlorobenzene	SW846-8270C	UG/L	10
1,4-Dichlorobenzene	SW846-8270C	UG/L	10
1,4-Naphthoquinone	SW846-8270C	UG/L	50
1-Naphthylamine	SW846-8270C	UG/L	50
2,3,4,6-Tetrachlorophenol	SW846-8270C	UG/L	10
2,4,5-Trichlorophenol	SW846-8270C	UG/L	10
2,4,6-Trichlorophenol	SW846-8270C	UG/L	10
2,4-Dichlorophenol	SW846-8270C	UG/L	10
2,4-Dimethylphenol	SW846-8270C	UG/L	10
2,4-Dinitrophenol	SW846-8270C	UG/L	50
2,4-Dinitrotoluene	SW846-8270C	UG/L	10
2,6-Dichlorophenol	SW846-8270C	UG/L	10
2,6-Dinitrotoluene	SW846-8270C	UG/L	10
2-Acetylaminofluorene	SW846-8270C	UG/L	10
2-Chloronaphthalene	SW846-8270C	UG/L	10
2-Chlorophenol	SW846-8270C	UG/L	10
2-Methylphenol	SW846-8270C	UG/L	10
2-Methylnaphthalene	SW846-8270C	UG/L	10
2-Naphthylamine	SW846-8270C	UG/L	10
2-Nitroaniline	SW846-8270C	UG/L	50
2-Nitrophenol	SW846-8270C	UG/L	10
2-Picoline	SW846-8270C	UG/L	50
2-sec-Butyl-4,6-Dinitrophenol	SW846-8270C	UG/L	10
3,3'-Dichlorobenzidine	SW846-8270C	UG/L	20
3,3'-Dimethylbenzidine	SW846-8270C	UG/L	20

Notes: Methods may change due to revisions to SW-846 or Heritage Laboratories methods as reflected in update of QAP. Detection limits may vary due to matrix interference or method changes

TABLE 4
40 CFR PART 264 APPENDIX IX PARAMETER LIST AND DEFAULT DETECTION LIMITS

PARAMETER	ANALYSIS METHOD	UNITS	ESTIMATED QUANTITATION LIMIT
3-Methylphenol	SW846-8270C	UG/L	10
3-Methylcholanthrene	SW846-8270C	UG/L	10
3-Nitroaniline	SW846-8270C	UG/L	50
2-Methyl-4,6-Dinitrophenol	SW846-8270C	UG/L	50
4-Aminobiphenyl	SW846-8270C	UG/L	10
4-Bromodiphenyl Ether	SW846-8270C	UG/L	10
4-Chloroaniline	SW846-8270C	UG/L	10
4-Chlorophenyl-Phenylether	SW846-8270C	UG/L	10
4-Chloro-3-Methylphenol	SW846-8270C	UG/L	10
4-Methylphenol	SW846-8270C	UG/L	10
4-Nitroaniline	SW846-8270C	UG/L	50
4-Nitrophenol	SW846-8270C	UG/L	50
4-Nitroquinoline-Oxide	SW846-8270C	UG/L	10
4-(Dimethylamino)azobenzene	SW846-8270C	UG/L	10
7,12-Dimethylbenz(a)anthracene	SW846-8270C	UG/L	20
Acenaphthene	SW846-8270C	UG/L	10
Acenaphthylene	SW846-8270C	UG/L	10
Acetophenone	SW846-8270C	UG/L	10
Aldrin	SW846-8270C	UG/L	10
Aniline	SW846-8270C	UG/L	10
Anthracene	SW846-8270C	UG/L	10
Aramite	SW846-8270C	UG/L	10
Benz(a)anthracene	SW846-8270C	UG/L	10
Benzo(a)pyrene	SW846-8270C	UG/L	10
Benzo(b)fluoranthene	SW846-8270C	UG/L	10
Benzo(g,h,i)perylene	SW846-8270C	UG/L	10
Benzo(k)fluoranthene	SW846-8270C	UG/L	10
Benzyl Alcohol	SW846-8270C	UG/L	10
Bis(2-Chloroethoxy)Methane	SW846-8270C	UG/L	10
Bis(2-Chloroethyl)Ether	SW846-8270C	UG/L	10
Bis(2-Chloroisopropyl)Ether	SW846-8270C	UG/L	10
Bis(2-Ethylhexyl)Phthalate	SW846-8270C	UG/L	10
Butylbenzylphthalate	SW846-8270C	UG/L	10
Chlorobenzilate	SW846-8270C	UG/L	10
Chrysene	SW846-8270C	UG/L	10
Diallate	SW846-8270C	UG/L	10
Dibenzofuran	SW846-8270C	UG/L	10
Dibenz(a,h)anthracene	SW846-8270C	UG/L	10
Diethylphthalate	SW846-8270C	UG/L	10
Diethylphthalate	SW846-8270C	UG/L	10
Dimethoate	SW846-8270C	UG/L	10

Notes: Methods may change due to revisions to SW-846 or Heritage Laboratories methods as reflected in update of QAP. Detection limits may vary due to matrix interference or method changes

TABLE 4
40 CFR PART 264 APPENDIX IX PARAMETER LIST AND DEFAULT DETECTION LIMITS

PARAMETER	ANALYSIS METHOD	UNITS	ESTIMATED QUANTITATION LIMIT
Dimethyl Benzeneethanamine	SW846-8270C	UG/L	20
Dimethylphthalate	SW846-8270C	UG/L	10
Diphenylamine	SW846-8270C	UG/L	10
Disulfoton	SW846-8270C	UG/L	10
Di-n-Butylphthalate	SW846-8270C	UG/L	10
Di-n-Octylphthalate	SW846-8270C	UG/L	10
DI-n-Propylnitrosoamine	SW846-8270C	UG/L	50
Ethyl Methanesulfonate	SW846-8270C	UG/L	10
Famphur	SW846-8270C	UG/L	10
Fluoranthene	SW846-8270C	UG/L	10
Fluorene	SW846-8270C	UG/L	10
Hexachlorobenzene	SW846-8270C	UG/L	10
Hexachlorobutadiene	SW846-8270C	UG/L	10
Hexachlorocyclopentadiene	SW846-8270C	UG/L	10
Hexachloroethane	SW846-8270C	UG/L	10
Hexachlorophene	SW846-8270C	UG/L	200
Hexachloropropene	SW846-8270C	UG/L	10
Indeno(1,2,3-cd)pyrene	SW846-8270C	UG/L	10
Isodrin	SW846-8270C	UG/L	10
Isophorone	SW846-8270C	UG/L	10
Isosafrole	SW846-8270C	UG/L	10
Kepone	SW846-8270C	UG/L	10
Methapyrilene	SW846-8270C	UG/L	10
Methyl MethaneSulfonate	SW846-8270C	UG/L	10
Methyl Parathion	SW846-8270C	UG/L	10
1,3-Dinitrobenzene	SW846-8270C	UG/L	50
Nitrobenzene	SW846-8270C	UG/L	10
5-Nitro-o-Toluidine	SW846-8270C	UG/L	10
N-Nitrosodiethylamine	SW846-8270C	UG/L	10
N-Nitrosodimethylamine	SW846-8270C	UG/L	10
N-Nitrosodiphenylamine	SW846-8270C	UG/L	10
N-Nitrosodi-n-butylamine	SW846-8270C	UG/L	10
N-Nitrosomethylethylamine	SW846-8270C	UG/L	10
N-Nitrosomorpholine	SW846-8270C	UG/L	10
N-Nitrosopiperidine	SW846-8270C	UG/L	10
N-Nitrosopyrrolidine	SW846-8270C	UG/L	10
Thionazin	SW846-8270C	UG/L	10
o-Toluidine	SW846-8270C	UG/L	10
Parathion	SW846-8270C	UG/L	10
Pentachlorobenzene	SW846-8270C	UG/L	10
Pentachloroethane	SW846-8270C	UG/L	10

Notes: Methods may change due to revisions to SW-846 or Heritage Laboratories methods as reflected in update of QAP. Detection limits may vary due to matrix interference or method changes

TABLE 4
40 CFR PART 264 APPENDIX IX PARAMETER LIST AND DEFAULT DETECTION LIMITS

PARAMETER	ANALYSIS METHOD	UNITS	ESTIMATED QUANTITATION LIMIT
Pentachloronitrobenzene	SW846-8270C	UG/L	10
Pentachlorophenol	SW846-8270C	UG/L	50
Phenacetin	SW846-8270C	UG/L	10
Phenanthrene	SW846-8270C	UG/L	10
Phenol	SW846-8270C	UG/L	10
Phorate	SW846-8270C	UG/L	10
Pyrene	SW846-8270C	UG/L	10
Pyridine	SW846-8270C	UG/L	50
p-Phenylenediamine	SW846-8270C	UG/L	20
Safrole	SW846-8270C	UG/L	10
Toxaphene	SW846-8270C	UG/L	50
O,O,O-Triethyl Phosphorothioate	SW846-8270C	UG/L	10
Pronamide	SW846-8270C	UG/L	10
Tetraethyl Dithiopyrophosphate	SW846-8270C	UG/L	10
sym-(1,3,5)-Trinitrobenzene	SW846-8270C	UG/L	20
Volatile Organic Compounds			
1,1,1,2-Tetrachloroethane	SW846-8260B	UG/L	5.0
1,1,1-Trichloroethane	SW846-8260B	UG/L	5.0
1,1,2,2-Tetrachloroethane	SW846-8260B	UG/L	5.0
1,1,2-Trichloroethane	SW846-8260B	UG/L	5.0
1,1-Dichloroethane	SW846-8260B	UG/L	5.0
1,1-Dichloroethene	SW846-8260B	UG/L	5.0
1,2,3-Trichloropropane	SW846-8260B	UG/L	5.0
1,2-Dibromoethane	SW846-8260B	UG/L	5.0
1,2-Dibromo-3-Chloropropane	SW846-8260B	UG/L	10
1,2-Dichloroethane	SW846-8260B	UG/L	5.0
1,2-Dichloropropane	SW846-8260B	UG/L	5.0
1,4-Dioxane	SW846-8260B	UG/L	1000
2-Hexanone	SW846-8260B	UG/L	10
3-Chloropropene	SW846-8260B	UG/L	20
4-Methyl-2-Pentanone	SW846-8260B	UG/L	10
Acetone	SW846-8260B	UG/L	20
Acetonitrile	SW846-8260B	UG/L	50
Acrolein	SW846-8260B	UG/L	50
Acrylonitrile	SW846-8260B	UG/L	70
Benzene	SW846-8260B	UG/L	5.0
Bromodichloromethane	SW846-8260B	UG/L	5.0
Bromoform	SW846-8260B	UG/L	5.0
Bromomethane	SW846-8260B	UG/L	10
Carbon Disulfide	SW846-8260B	UG/L	5.0
Carbon Tetrachloride	SW846-8260B	UG/L	5.0

Notes: Methods may change due to revisions to SW-846 or Heritage Laboratories methods as reflected in update of QAP. Detection limits may vary due to matrix interference or method changes

TABLE 4
40 CFR PART 264 APPENDIX IX PARAMETER LIST AND DEFAULT DETECTION LIMITS

PARAMETER	ANALYSIS METHOD	UNITS	ESTIMATED QUANTITATION LIMIT
Chlorobenzene	SW846-8260B	UG/L	5.0
Chlorodibromomethane	SW846-8260B	UG/L	5.0
Chloroethane	SW846-8260B	UG/L	10
Chloroform	SW846-8260B	UG/L	5.0
Methyl Chloride	SW846-8260B	UG/L	10
cis-1,3-Dichloropropene	SW846-8260B	UG/L	5.0
Dibromomethane	SW846-8260B	UG/L	5.0
Dichlorodifluoromethane	SW846-8260B	UG/L	10
Methylene Chloride	SW846-8260B	UG/L	5.0
Ethylbenzene	SW846-8260B	UG/L	5.0
Ethyl Methacrylate	SW846-8260B	UG/L	5.0
Trichlorofluoromethane	SW846-8260B	UG/L	5.0
Iodomethane	SW846-8260B	UG/L	10
Methacrylonitrile	SW846-8260B	UG/L	20
Methyl Ethyl Ketone	SW846-8260B	UG/L	10
Styrene	SW846-8260B	UG/L	5.0
Tetrachloroethene	SW846-8260B	UG/L	5.0
Toluene	SW846-8260B	UG/L	5.0
trans-1,2-Dichloroethene	SW846-8260B	UG/L	5.0
trans-1,3-Dichloropropene	SW846-8260B	UG/L	5.0
trans-1,4-Dichloro-2-Butene	SW846-8260B	UG/L	20
Trichloroethene	SW846-8260B	UG/L	5.0
Vinyl Acetate	SW846-8260B	UG/L	10
Vinyl Chloride	SW846-8260B	UG/L	10
Xylenes, Total	SW846-8260B	UG/L	5.0
Ethyl Cyanide	SW846-8260B	UG/L	5.0
Methyl Methacrylate	SW846-8260B	UG/L	5.0
2-Chloro-1,3-Butadiene	SW846-8260B	UG/L	5.0
Naphthalene	SW846-8260B	UG/L	5.0
Dioxins and Furans			
2,3,7,8-TCDD	SW846-8280A/8290	Ng/L	10 / 0.01
2,3,7,8-Tetrachlorodibenzofuran	SW846-8280A/8290	Ng/L	10 / 0.01
1,2,3,7,8-Pentachlorodibenzodioxin	SW846-8280A/8290	Ng/L	10 / 0.05
1,2,3,4,7,8-Hexachlorodibenzodioxin	SW846-8280A/8290	Ng/L	10 / 0.05
1,2,3,6,7,8-Hexachlorodibenzodioxin	SW846-8280A/8290	Ng/L	10 / 0.05
1,2,3,7,8,9-Hexachlorodibenzodioxin	SW846-8280A/8290	Ng/L	25 / 0.05
1,2,3,4,6,7,8-Heptachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05
1,2,3,7,8-Pentachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05
2,3,4,7,8-Pentachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05
1,2,3,4,7,8-Hexachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05
1,2,3,6,7,8-Hexachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05

Notes: Methods may change due to revisions to SW-846 or Heritage Laboratories methods as reflected in update of QAP. Detection limits may vary due to matrix interference or method changes

TABLE 4
40 CFR PART 264 APPENDIX IX PARAMETER LIST AND DEFAULT DETECTION LIMITS

PARAMETER	ANALYSIS METHOD	UNITS	ESTIMATED QUANTITATION LIMIT
1,2,3,7,8,9-Hexachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05
2,3,4,6,7,8-Hexachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05
1,2,3,4,6,7,8-Heptachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05
1,2,3,4,7,8,9-Heptachlorodibenzofuran	SW846-8280A/8290	Ng/L	25 / 0.05
1,2,3,4,6,7,8,9-OCDD	SW846-8280A/8290	Ng/L	50 /0.1
1,2,3,4,6,7,8,9-OCDF	SW846-8280A/8290	Ng/L	50 /0.1

Notes: Methods may change due to revisions to SW-846 or Heritage Laboratories methods as reflected in update of QAP. Detection limits may vary due to matrix interference or method changes